

HOME COMPUTING WEEKLY

AN ABOUT SPECIALIST PUBLICATION

June 15-17 1983 No. 106 30p



Atari 130 XE



Hardware review p.18

Toys for all from CCL



Holiday fever from Commodore

The holiday season has already arrived at Commodore. The company plans to offer fine holidays in its new C64 package deal.

The new "bundle" of hardware and software will include the C64 itself, its dedicated cassette monitor and International character set, its best selling game, *Demolition*, its best cost, *100%*, a large saving on the recommended price but not on the price that has recently been charged by high street stores.

This holiday season that will be given with each package offers three free copies, one each in a box of about 250. The accommodation is for two people and each has a feature like the *100%* and *100%*. Commodore is now looking for the new deal that they want to even better the supplies from Commodore. They are putting the

package together from their existing stocks. The offer is open until August although what happens in the price and package after that date has yet to be decided.

There will also be a new peripheral pack available soon. As we want to press deals that will be confirmed, that is a disc drive, monitor and selected software will be offered at 250. This represents a saving of over 100 on current prices.

Other packs planned for summer include the two business packages based around the Plus 4 computer. The first includes the computer, the MP540, printer, the 124 disc drive and software is a price of 1449.

Existing owners of the Plus 4 might like to take advantage of the peripheral pack without the com-



Neil Macdonald, Commodore's marketing and consumer manager

puter for 1449.

Commodore hopes that these bundles will encourage sales in the traditionally slack summer period.

Coming soon: MSX Plus

The MSX Plus, the first major upgrade to the MSX system, was announced this week by ASCII Microsoft, developers of the MSX standard.

The new version will offer an enhanced graphics capability giving "a picture display in portrait oriented with a home computer". It will be launched in Japan in September 1983.

The graphics resolution has been upgraded to 512 dots horizontal by 385 vertical and the text display will be 80x24 instead of the maximum of 40 characters per line available on current machines. The upgraded version offers a definition of 256 colours and the text view synthesiser chip more than doubles the present visual capabilities.



MSX Plus is the upgraded

30 Henshin Robos must be won!

Free

Graphics conversion chart inside

Computers in society—special feature

Amstrad: Machine code the easy way

Train horses with your C64

10 out of 10 for your Spectrum



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HOME COMPUTING WEEKLY

CONTENTS

June 11-June 17, 1985 No. 116

Soupbox

I find very strange about computers education and I find it more strange the more I learn about computers in schools.

I myself am still at school and will be in my last year after the big holidays in September which, I think, leaves me in a very good position to be commenting on this subject.

My mathematics teacher used to be much better than I'd have liked it to be, but for 18 months now I have owned a very fundamental Commodore VIC-20, which has improved my maths and my memory at the same time. My maths improved from writing machine code routines instead of numbers (although I don't recommend it) and also from all the calculations we worked, and all the thought which goes into a machine program. My memory improved from remembering the hundreds of important memory locations needed when

programming, and remembering what variables to memory locations I used for which calculations.

I don't think the theory side of computer studies is as important as the practice, although schools seem to think it is more so. But if schools taught programming on computers as much as the VIC and maybe went as deep as in machine code programs, instead of covering the surface with simple BASIC routines, it would give the pupils exposure with computers, help improve their maths and improve their memory, which is an essential requirement to pass any exam.

Taking this into consideration I think anyone that gets a computer in an important part of education today.

M Howard, Bolton

If you have something you want to see, write to: *Department of Home Computing*, 100/10, 1 Golden Square, London W1R 3AL. We give a prize to the writer of each letter printed.

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SPECIAL FEATURES

Alert 120.00 — hands on review 18

Computers in society —
computerisation for the deaf 20

Drawing the line —
graphics conversation
chart 22

Book reviews — BBC special 23

Golfing chart — year top ten 25

BBC
Protect your software 26

AMSTRAD
Machine code — the easy way — part two 28

SPECTRUM
18 out of 10 — user prediction 30

COMMODORE
Because we train — C64 games 32

Two for the price of one — VIC 20 games 34

REGULARS
News — happenings and products 42

C64 Competition — who is top robot 4

Software reviews —
all the new programs 10-25

Letters — our readers write 42

Readers page 46

Coming soon

- Part two of our hot conversations chart
- Interview 120 review
- Interview 120 review
- What's in the future

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BASIC LIVING

Jim Barker Jon Wedge



Happy families

Help is at hand for parents who find it hard to keep up with the computer whizz-kids. Ardmore Adventure are running family computer weekends at the Crest Hotel near High Wycombe in Buckinghamshire.

These activity weekends are designed to give parents a crash course in computer programming and applications in a relaxed, informal atmosphere. Meanwhile, their children receive tuition which ranges from beginners to advanced classes on C64 and BBC computers in a neighbouring room.

High points of the first weekend workshop was a visit by BBC presenter John Craven who takes an active interest in Ardmore's new venture.

Future weekends are planned for June, September and October.

Ardmore Adventure, 23 Ranelagh Place, London W9. Telephone: 01-499-4441

Erratum

Graywood Home Computers, in Kent, were mentioned recently in our letters page by a reader who said that this company could supply TI-99-4A financial BASIC for EEs. This is not the case and Graywood Computers has received many enquiries from EEC readers who have been disappointed to learn that they cannot get Extended BASIC for the cheap price. We have been asked to set the record straight.

Enslaved

A 'n' P's Super 88C Eprom has been relayed as price, and is now available for £19.90 — a price out of this world.

Want more with a 48-page manual and, according to A 'n' P, a bulletin board reader not available elsewhere?

The great change has been made possible due to the dramatic reduction in the cost of ROM chips. Used news has only been available through mail order but soon it will be appearing in the shops.

A 'n' P Software, Unit 8, Canal City Ltd Est, Woodside St East, Rochelle, Lancs O11A 3JF



John Craven and friends give computer weekends the thumbs up

Top games come home

Eight of Japan's top arcade games are to be transferred to the Spectrum, Commodore and Amstrad computers by Konami. Konami has acquired the rights from Namco and the rules will be available throughout Europe. "Konami's director, David Ward said: "Konami has produced some of the most famous coin-operated arcade games in the world which will now appear on our home-

console label for the mass market market."

Kings Hiroshi, of Konami UK commented: "We took a close look at British military games. Because of Konami's record of producing a wide line time clock, timing, accurate games, we predicted that these had both the program, money, publishing and marketing experience to produce our top titles."

Konami, 4 Central St, Manchester M2 4PD

Konami®



Sealing the deal

GET CONVERTED

There for children of all ages set on offer in this week's free competition.

Anyone who voted the Toy Fair early this year must have concluded that 1985 will be the year of the transforming toy. There were cars that transform, planes that transform, and even insects that transform.

CGI, the parent of George the computer robot, have launched a new range of toys, the Healden Robots. They are characters from a Japanese television series in which the heroes and villains, the Healdens, are struggling to reclaim the Earth from the grip of the mysterious Invict.

The Invict's lightning force is made up of Legions which can transform into three different fighting machines. They can be Army soldier robots, Army divers and Army fighters.

Each of the Army Soldiers is worth £22 and we have 30 to give away to lucky HCW readers. These maddily-bank toys will give hours of pleasure and we aren't even going to ask your age!

All you have to do to win this week's competition is spot the difference between the two robot pictures below. So wait no more time, transform yourself into a hard-eyed super-quick player and we'll reward you with a super prize.

How to enter

• Study the two cartoons — there are a number of differences between them.

Toys worth £660 are on offer in this week's competition. They convert from soldiers into divers and fighters too

Circle the differences on cartoon B and send the cartoon and copies in an envelope. Write clearly the number of differences you found on the back of the envelope.

• Post your entry to: CGI, Care persons, Home Computing Weekly, No 1 Golden Square, London W1R 3AF. The closing date is firm post on Friday 25 June 1985.

• **Important!** please follow carefully the guidelines on entering — incomplete responses and entries with no numbers on

the back cannot be considered. If you are a winner, the response will act as a label for your prize, so clear writing is essential.

The rules

Entries will not be accepted from employees of Apple Computer Publications, Computer Retailer, printer and distributor: Precision & Sons. The publisher also accepts no employees, families and agents of the computer.

The prize is three weeks' Home Computing Weekly. The entry is divided in four and the correspondence can be retained and



CGI Competition

Entry Coupon

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post code

Number of differences found

Complimentarily and fully — if you are a player with off entry credit for your entry. Post to: CGI, Competition, Home Computing Weekly, No 1 Golden Square, London W1R 3AF. Closing date: Friday 25 June 1985. Open (anyone can enter) and close (no more entries) writing the number of differences you found on the back of your drawing.





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PROTECT YOUR SOFTWARE

Beverly Kenna's two short utilities enable you to protect your programs from prying eyes

RMW

If you let some commercial software you may use that some how appear to be blank. These files use a protection technique that is very simple to implement. Type in this listing and this will enable you to lock the relevant lines in your own programs.

How to use it

To indicate what is to be locked, use the characters @ to begin listing and # to stop listing. Statements in each entry of the section to be locked. Anything that appears between about two slashes will not show up on a listing.

The program studies its memory at the start time as the program is to be protected. So to tell the program the beginning and the end of this first page. Type: TOP and then: P#-PAGE. Then single step page to #1000 and Chain the HIDE program. The program will then search through the listing and lock the relevant code.

How it works

The program sets the control code 1. This is the code to turn off the VCL driver. If this code is present to the screen, then the screen is switched off until the code 0 is printed.

```

10REM Hide Utility
20REM Load with PAGE=17000
30REM after setting P#-PAGE
40REM 0 TL=TOP
45 REM (C)
50 KEY 0 PAGE=17000:IN CLOTH LISTIN
60 FOR I=P# TO TL
70IF ?X=64 THEN ?X=31
80IF ?X=35 THEN ?X=4
90NEXT I
100 #FX 138,0,138
    
```

File locker

If you have ever wanted to know how software houses make their own files that must be "RUN" and give the error message "Locked". If you attempt to "LOAD" them, then the utility will show you and enable you to produce your own.

How it works

The program makes use of the file's secret facility. This is a simple way of using interrupts.

The event has to be enabled with a "FX 14 X" call where X is the type of event required. The gas we will use is for the start of Vertical Sync event. This can be used for better-time animation but the point about this one is that it occurs 50 times a second.

What the program does then is every 50th of a second "POKE" the location 43CA with the value 1. This sets the protection bit of the block flag. If this happens when the file is saved then the file will be locked.

```

10 REM Locker utility
20 REM Press #0 to *LOAD
30 REM Then #1 to *SAVE
40 #KEY 1 #FX 14,4:IN *SAVE"
45 REM (C)
50 CLS
60 PRINT "Locker utility resident"
80FOR I=0 TO 2 STEP2
90 P#-PAGE
100OPT13
110P#P
120P#H
130TXA
140P#A
150TYA
160P#A
170LDH 43CA
180AND #0FE
190 CLC
200 ADC#1
210STA 43CA
220PLA
230TAY
240PLA
250TAX
260 PLA
270PLP
280RTS
290NEXT
300?L220=0
310?L221=6A
320#OPT 1,2
    
```



SOFTWARE



RIP

Masquerade appears to have bought a job lot of programs from the same author since this is similar to *Legend* and the excellent *Knightmare*. The concept is extremely simple. You start out about 20 different screens, following the chains locked in each. Your adventures are rewarded by screens of status who are aware of killing you off; they can be readily ignored by your own sword. These screens aren't too large and will show everything in sight, including skeletons — this format can be used to your advantage.

The graphics are good for the VIC: each an expanded screen and colourful well-defined figures. Everything moves at a leisure pace and you're not to be on your feet too long. The most annoying feature is the repetitive playing of the death march — I soon learned the volume down.

I felt that through rather lack of space in *Knightmare*, the author had missed some important error checking. This resulted in you turning the game adjacent to a enemy with almost certain death or, more unfortunately, a chance appearing in an area where you couldn't reach it.

These features really don't spoil the game too much and overall this is an addictive game which offers a fair challenge. Younger owners will find the game quite a test, although I suspect that real arcade lovers may find it a little easy.

Great value, well worth buying. A.W.

Price: £1.99

Publisher: Mastertronic

Address: Park Lane, 110 Park Rd, London NW6 1TL

VIC-20



MATCH PATCH

Aimed at young children, this is one of Mastertronic's first ventures on their Mastertronic educational range, and a very good one at the range too.

The program holds a number of pictures which are divided into a 2d grid, and after you've had a look at the complete picture to get it into your memory, the main picture are mixed up. The child must then arrange the picture to its original form in the least number of moves.

It's a fairly well-known type of puzzle, but the particular implementation is very good. There's a high score table to add an element of competition, and although some of the pictures look deceptively simple at first, when they're been rearranged they can be very difficult to put out. One picture in particular, that just had the simple words *Match Patch* on it, took me ages to complete (and an embarrassingly high number of moves, too).

As it happened, there is a counter for the number of moves taken, and that is an excellent idea, but by introducing that competitive element, the program encourages the child to try and win, for one winner to think carefully and logically about each move rather than randomly rearranging the picture system in the hope of randomly finding the right arrangement.

At first I thought this would be yet another unexciting piece of educational software, but I was quickly proved to be both wrong and adduced, and at the price it's a bargain.

C.J.

Price: £1.99

Publisher: Mastertronic

Address: Park Lane, 110 Park Rd, London NW6 1TL

SPECTRUM



FOURTH ENCOUNTER

This game is an EMI's budget label, spartan and rustic at £1.50. Even better than that, it's for the VIC. The scenario is intensely familiar and involves possessing your planet from power-crazed alien who attempt on eradicating *disasters*. You pilot your (space ship) and must repulse the waves of enemies. Four waves of enemy attack you, each with a different type of alien and different tactics.

The first three waves are the usual downward moving objects with different patterns of movement and means of attack. The last wave of enemies of Jeff Mauer's *Meteor* and involves attack from both the horizontal and vertical axis. The last wave is certainly the best. Each screen has four levels of difficulty, offering a significantly different challenge. You can choose any of the four waves to play, which means that you can try all of the game.

The graphics of this game are pretty fair with some interesting animation on screen too. The action is fast and challenging, the choice of colours is sensible and moves that no problems occur due to remembering.

Overall, I have mixed feelings about this game. The plot certainly doesn't break new ground and the graphics are no better than average, but the program is fast and slick showing quality programming. Add to that the low price and my overall conclusion must be that the game is excellent value and well worth a close look.

A.W.

Price: £1.50

Publisher: Thorn EMI

Address: Thorn EMI Ltd, Upper St. Martin's Lane, London WC2H 9BS

VIC-20





Amazon Warrior

The enemy jungle barbarian warriors which stalk first into the lair of the hero. Such is the setting for Amazon Warrior.

With nothing but a blowpipe and forty poisoned darts, you must travel through the jungle, the crystal caves and the ruined temples to face the final conflict.

The jungle is inhabited by tree snakes, crocodiles and birds, all of whom are after your blood. To feed off their poisonous attacks you must stand and fight or run but whatever you decide it has to be done quickly. The jungle waits for no-one.

In the caves the vampire bats and writhing lizards and disgusting freshwater spiders which will wrap you up in a cocoon and eat you off. The temples are old and crumbling so beware of falling masonry.

The game could be played indefinitely simply by reloading every all the time but there comes a time when you must stand and fight. After loading the blowpipe, it can be moved through a 180 degree arc until a trigger is hit as the target. A quick press of the fire button dispatches the dart (and hopefully the enemy too).

I think the game (question to be answered) about this action adventure is: what does it offer that Postcard Forum doesn't?

Having played the game I still can't answer that one. The graphics give the same bit scrolling effect, the music is theory and measure. Shoot the creatures or be eaten. No, can't we much difference apart from the transportation to the Amazon. Don't misunderstand me, the game is enjoyable, addictive and all that, but my warrior had a tremendous feeling of déjà vu.

E.D.

Price £7.95

Publisher: New Generation Software

Address: The Brooklands, Sunningdale, Lynnhurst Vale, Epsom

G64



Backgammon

Let's well know: this chess or draughts, backgammon is addictive and compelling. In some ways like a sophisticated Ludo, your task is to pile your counter back round the board to their base, at the same time keeping and blocking your opponent. On-screen disc indicates the moves you can make, rather than poor for the total, or any compensation for redoubt) men. Clash an opponent's piece undefended and you can launch it from the board. He can only return to many places when he succeeds in rolling a 1. Great fun.

Written primarily in BASIC with some machine code, this offering from CP features a black background, so no eye strain, comfortable colours, and an attractive representation of the board, though movement is rather flickery and the disc are by no means state-of-the-art graphics. Illegal moves are simply not accepted, as opposed to the message the may leads you to expect. Otherwise the instructions are good, though a little sparse.

Scrolling down to a good game revealed two fatal flaws. In my first game, when updating a coordinate, I accidentally pressed ESC instead of a number. The program crashed a mere later and the computer rose. I loaded again, and after a few minutes play, the game ground to a halt with a BASIC "unproper argument" message, and the program disappeared, it being a protected file. Very sad, this would have been a useful acquisition, but with the bugs present, it cannot be recommended.

D.M.

Price £7.95

Publisher: CP

Address: 10 Alexandra Rd, Harrogate HG1 1XJ

AMSTRAD



Draughts

I have to be honest and confess that board games have never been of great interest to me. Hence the first, it's clear that a home computer must be a boon to those interested in gaining some practice in without the chance of losing to another human being, hence the value of software like this.

Some years ago, I used to think that draughts was a simple, gamey pastime, and I saw many a young man with what can only be called killer instinct! He is warned before loading, and tape plays a crisp game. Try it myself, I couldn't win against it, even on the beginner's level. Points are made on the co-ordinates principle, like computer chess, and a record of moves kept on screen. All the legitimate moves are possible, and the illegal ones blocked.

The screen is well laid out, though there is an attempt to give the appearance of 3-D. Machine code appears to have been employed to move the pieces, because if you take your eyes off the screen for a moment, the whole thing has happened without your seeing it, and that means pointing your way through the co-ordinates to work it out. A rather slow response would have helped. Similarly, although the colours of the pieces and board can be seen, the background remains a rather gloomy white. After a while this is a real strain on the eyes, particularly as clear study is required. If draughts is what you like, we this.

D.M.

Price £5.95

Publisher: CP

Address: 10 Alexandra Rd, Harrogate, HG1 1XJ

AMSTRAD



Fipped



Hooked



Keen



Yawning



Comptons



Rockman

It's not to say that Mastertronic are forcing their hands to the development of software for VIC-20 owners. At the £1.99 price, this has got to be good news for a great many people.

The author of this program has obviously played that well known manuscript *Reader Digg* since that game has many similar elements. You have 20 scores to make. That eight pieces of an amulet in each cave must be collected before you move onto the next cave. Within each cave are rocks embedded in a matrix of earth. As you dig through the earth, the rocks will survive, crumpling up if you get in the way. Also lurking in the caves are purple figures which will grab you given half a chance and while which have a similar inclination.

I must give full marks to the author of this program. The game uses an expanded screen and to fit 20 screens into an unexpanded VIC must have been a bit of a challenge. The graphics are as good as the VIC can offer with palette animation and colour. The behaviour of the rocks is occasionally a little haphazard but with practice this can be overcome. Better still, the use of detail would have been helpful since the game often started with you being adjacent to a purple entity with instant death resulting. I also wonder how many of the random layouts of the spade pieces were actually possible to complete.

Notwithstanding these minor quibbles, a great game. **M.W.**

Price: £1.99

Publisher: Mastertronic

Address: Park Lane, 111 Park Rd., London NW4 3TL



The Captive

The current trend in adventure is to get away from text and use other forms of communication with the computer. This game is quite interesting in this respect. It's a fairly straight-forward graphical adventure, a quite novel means of communication is used. The idea is to escape from the Glen of Coloured Captives. The top half of the screen shows a map of the area with your figure in the middle. As you move about the map scrolls to show your own position. Scattered about the map are objects which can be used to give strength or to further your escape. There are also hazards to be avoided.

The lower half of the screen controls your actions. A game is used to decide your actions. The consequence of your action is also shown in this area. If, for example, you use a scroll, the text of the scroll is displayed. The idea is to use logic to decide the value of the items and thereby escape.

The quality of graphics and sound are excellent. The map is colourised, showing well-designed buildings and woods. The play area is large providing a fair bit of exploration. The background music is a jolly arrangement of the Beethoven's *Appassionata*.

The main thing about this game is that not only is it good quality but that it only costs £1.99. Overall, excellent value for money. **A.W.**

Price: £1.99

Publisher: Mastertronic

Address: Park Lane, 111 Park Rd., London NW4 3TL



The Code Machine

If you decide to write machine code programs, you will need some programming facilities to enter the code and experiment with it. An assembler allows you to do this as a series of program lines, as a similar way to BASIC. The computer then 'assembles' these into machine code. A monitor allows you to examine and edit the contents of the memory. Both programs are essential to someone wishing to write serious machine code programs.

The Code Machine offers both on one cassette. Supplied with no machine software manual, the package offers a wide range of features. All 256 instructions are covered and it stores an unlimited number of labels as well as either hex or decimal numbers. It is very easy to use with a quick entry and assembly of a maximum rate of seven words for every 100 of code. For long programs, it allows the code to be assembled in up to 28 linked sections which can be loaded or separately assembled and stored together. The assembler works in either MODE 0 or MODE 1.

The monitor has the same characteristics, it is full of features and is quick and simple to use. The comprehensive error detection made is especially simple.

The code machine is not cheap and this prevents a getting top rating. Still, if you're interested in writing code and can afford the 'big' tag, then it's a most **OUTSTANDING**.

Price: £19.95

Publisher: Portemque

Address: 4 Cornsford Hall, West Wickham, Kent BR4 9BB



Raptor

Despite the rather high price, which probably reflects the checking state of the Atari software market, I believe that *Raptor* has a winner in this game.

The game is based on the *Goldfinger* idea that has already been seen on some other computers and which involves collecting treasure from a field full of dangerous elements. In this case you are the rather alien-looking raptors which stalk the screen and the targets are many and various.

The graphics are very good indeed. They are large and colourised and the animation is superb. I particularly like the way the characters which you control has a look around him if you don't move him for a while.

Another danger are the eggs which if cracked turn into the dreaded *Raptores* of the title. These green and yellow creatures pursue you around and will kill you if you touch them. Once again the animation is superb.

This game has that addictive element which is becoming rare in software these days — perhaps I'm just becoming more jaded, I think it's the strong element that makes it so good.

You can study the map on the lower levels so as to plan your moves and try out different ideas.

Raptor has all the features of a well thought out and professionally finished product, good graphics, clever sound and superb animation. Despite its price it still gets top marks. **B.S.**

Price: £3.95

Publisher: Superior Software

Address: Roper Hts, Sharnbrook, Leeds LS17 1AX





Stern Davis Snooker

Having been an avid player of CDS's snooker program for the Amstrad, I looked forward to this European version. Surprisingly, the higher quality graphics, or even lack of some memory and a number of other advanced features, this version would be even longer than the stock Amstrad *Snook*! Wrong! The Amstrad version is better, while the European version looks as if it was rather a rush job, getting it ready for publication.

For those readers that haven't come into contact with CDS's Snooker program, a brief explanation is necessary. The game involves gradually taking the points of snooker. All the balls are in colour and what you have decided exactly where you wish your cue ball to aim for, as the strength of the shot and the spin on the cue ball, you fire away!

The snooker balls connect and are sent bouncing around the table in an unobtrusively realistic, particularly when you consider the number of calculations as well as screen movements which must be performed. As with all versions of this game from the CDS stable, the European also features a three- or two-player game, high score tables and short or long games! It needs to get as opposed to 15!

I doubt if you will see a better snooker program on the home price. The table is realistic and provides for a most entertaining computer game. Though it is not as good as the Amstrad, I think that it's worth up, just as my magazine *World Champions Overseas* claims and try and get a 147 break on my European.

C.G.

Price £8.99

Publisher CDS

Address Silver Hill, Silver St, Doncaster, S Yorks DN1 1HL



Operation Caretaker

In theory, this is an excellent idea — a test and training for the most distant player (although not, as Global implies, for the computer) to practice thought. I wouldn't figure out what was going on or what an answer when I had the program up and running.

The kit consists of a head closer and disengagement tape, a small drive device for rotating the head alignment too far so good, both of these are good ideas and a short program which checks correct alignment.

It's the latter which causes problems, as there are no instructions at all to explain how the program works, or to explain what jargon like "automatic alignment" means. The screen display consists of an assumed line graph with three columns, but there is no explanation of what the line means. Between the graph are five lines of text referring to the head status, Ryan Reed, Reed Status, Speed and Sensitivity of (I assume) whatever data is being LOADED.



Now though direct loading might sound self-explanatory, the figures which accompanied them were completely confusing. According to the program, my amateur player, which has been completely misable since I bought my Spooky in '83, is a complete wreck which apparently makes more sense than there are bytes in any given file.

As I said, this kit is a good idea, but as it stands the lack of instructions and explanatory notes make it very lacking in user friendliness.

Price £8.95

Publisher Global Software
Address 21 Midway Road, London SW11 1BA

Adventure Playground

This package is a collection of educational programs for early readers up to 11 year olds. The first main constant four separate programs which are loaded into the Intermaze together and are all based around the Crooked Man nursery rhyme; no, it wasn't one of my favourite either.

These four programs basically involve you trying to get the crooked man, the crooked cat and the crooked mouse all to reach the crooked house. Each program was a line of the nursery rhyme so what to have in game. In the first game, for example, you have to get the crooked man to the crooked cat. You can only move the man when you get one of the simple problem/question card.

In this first game, the questions deal with sets. A number of given shapes will appear and a different coloured shape will appear as the other side of the screen which changes colour every second or so. You guess the key when you think that the shape belongs to the set. All four programs tend to work along similar lines, though the subjects covered range from sets to no program, matching of objects and simple numerical calculations. These programs for the young are (nearly) not about words or spelling but of interest.

The second set, *Running the Queen Of Hearts* is an altogether worse affair. Described as a photo's first adventure a days feature some very nice graphics. But its content is of little use to the child or parent. The adventure is poor and badly directed. It is complex enough to be used by eight-year-olds and up, but it also age group still marred by nursery rhyme and really nursery-book characters! I doubt the value of this educational package, despite all its good features.

C.G.

Price £1.95

Publisher Widge

Address 48 Darton Rd, London N2 6DT



Frank T' Stein

Dr Stein's monster has gone to prison and he requires your help in locating his various little pets, scattered around the laboratory.

Frank T' Stein is a game of hidden and leads with several of the monster's parts embedded in the floor at each level. Also embedded in the floor are a number of game sprouts. Your special movements are left and right except when standing on a spring, where a quick double the direction will propel you skywards to the level above.

In the first level, your progress is hindered by the presence of a large bear, hypodermic syringe, and tank. Contact with any of these items results in the loss of one of your three lives. All the monster's limbs must be working from the start of the game. As each part is acquired it appears at the top of the screen, placed in some word and wonderful device. Having reconstructed your creature, all that is required is to lick the screen and give him life.

On subsequent screens the monster joins at the top by having huge chains, tails in every direction, usually with changing accuracy. The creature claims that the quarter you construct the monster the less accurate he will be on the higher levels.

A companion program too I can't wait to bring the monster to of 1985.

J.R.

Price £9.95

Publisher Amsoft

Address Broadwood Hall, 169 Kings Rd, Brentwood, Essex CM14 4BP





Colossal Adventure

This is the grandfather of the modern computer adventure, the first ever adventure game, written on a BBC microcomputer by Christopher and Woods, two Americans in the mid-1970s. As home computers became cheaper and cheaper and the amount of memory they had space grew and grew, home computers' adventure games became a possibility. This adventure has been converted to almost every popular home computer and it is a sign of its great quality that it is still as entertaining today as it was back in the late 70s.

Colossal Adventure is a very rough adventure to solve. Set in a typical world of fantasy mixed with modern day devices, you must find all the treasure hidden within the maze of forests, collect it and manage to get it back to the building. The road to this adventure is a maze, and you must use all your wits, cunning and good language. The solution to the many puzzles that confront you require lateral thinking, that is, an adventure you are going to finish is a couple of steps.

Level 9, known for an excellent adventure for a host of other home mikes, is the company behind this computer and it has given the user an additional bonus. While they have made every effort to be to the original's storyline and puzzles, including pretty faithfully to the original's storyline and puzzles including the amazing solution of the word LIST as a secret word, they have added an extra end-game once you have collected all the treasure. This additional part of the adventure covers a staggering further 70 locations and it is in the same style as the original. Without doubt, this is a merit if you have never played the game before. A superb version of the adventure class. C.G.

Price: £5.95

Publisher: Level 9

Address: 228 Highbridge Rd, High Wycombe, Bucks



Cavalight

This is yet another conversion of a C64 game to the computer. In this case I was particularly pleased that it is for the new desktop VIC. This game is effectively a platform-type game where you must travel down a network of caves. You make your way by climbing ropes and jumping chasms. The caves are inhabited by snakes, skeletons, of course, and you. You can shoot these creatures but they will reappear.

Since the game uses an unreplicated VIC, some fiddling must be used. The caves are kept on tape and loaded as required. The cave actually is memory displayed in sections, each appearing as you move off screen. The graphics are really very good, with the snakes appearing as soft green with grey background patterns. I can't understand why only now programmers are using soft space on the VIC to no extent. I can only really use other games which really used this approach and that appeared about two years ago!

The control of the game is a little awkward with the five buttons determining how high you jump — the lower you hold it down, the higher you jump. Another oddity is that you can walk as well as!

Overall I don't really like the feel of play in this game. Rather than experiencing the challenge of a racing game, I was filled with confusion. Sadly, the game is less effective than the C64 original. In view of the material supporting for the VIC on the budget table, I consider this game a little overpriced. A/W.

Price: £5

Publisher: Bialla Box

Address: 87 High St, Tonbridge Kent TN10 1BX



Knockout

The press releases accompanying this sold as that our review copy was not the final version of the game, though presumably the review copy had most of the features planned for the final version, otherwise there's no point in reviewing it.

Anyway, after a (pretty feeble) couple of hours of the third or one of the original Rocky films, we are introduced to a fitness machine (yes, that's you) and his boxing opponent. The purpose, of course, is to knock the stuffing out of each other using a combination of heavy blows and a flurry of haymakers.

Actually, the fancy footwork consists of moving left/right, and the punches can be input to the head or body. There is also a guard control, to cover yourself from your opponent's attacks, but it didn't seem to do much when I used it.

The movement of the boxer is good, and they are both large, well-drawn figures. Once I got the hang of it, I managed to land a few thumps on my opponent, but it seems that you can't move fast enough to avoid his blows once they're launched. After a while I got used to the pace of the game and then it seemed that we just took turns punching each other and the whole thing started to seem a bit mechanical and monotonous. Perhaps additional skill levels would add some variety.

I found Knockout enjoyable to play for a while, but the motivation faded fairly quickly. C.B.

Price: £6.95

Publisher: Alligata

Address: 1 Orange St, Sheffield



The Key Factor

The Key Factor by Paul Ashton is a very useful program aimed at improving your mastery of the keyboard — and clearly designed as a space invaders game.

Having selected the level of play, the screen shows and beeps commences. Your laser beam is represented by eight squares at the bottom of the screen, each containing a letter. By typing from the keyboard. Above your beam are numerous stars, which are needed each time a star escapes your fire and reaches the shield.

Letters are fired by pressing any of the keys displayed. On the lower level this doesn't present too many problems as the squares don't move. On the upper levels this means that you must make sure that you move the letters into the correct position and reach the target level you may expect that although you appear to be getting the correct keys there are no hints, making the problem. This is because the symbols are changing constantly, so if you decide before hitting the correct key you will find that it has already changed to a new symbol.

All of the stars are displayed in glowing colour and great detail. Paul Ashton has obviously taken great care and a theme. A well presented and fun way to find your way around the keyboard. J.R.

Price: £5.95

Publisher: Amsoft

Address: Brentwood Hse, 140 Kemp Rd, Brentwood, Essex CM14 4EP

AMSTAD

Price: £5.95

Publisher: Level 9

Address: 228 Highbridge Rd, High Wycombe, Bucks

ENTERPH

VIC-80

SPECTRUM



Nautlar

This good completion first appeared on the 64 and has now been converted to the C16. Six games are available, three each of one- and two-players. The visual types of games are supported, i.e. you can sail in any order, put each ball in the coloured pocket, pocket the balls in the correct order, manual goal rules and each player putting in score orders. The computer keeps track of scores and displays them for both the

A confusion cannot be avoided to allow you to turn this as moved to the required direction of motion by use of the joystick or cursor keys. The strength of shot is varied by shooting when a 'stronger shot' consists the required level. I found this feature a little difficult to control since the strength changed rather too quickly. All types of shot can be used by pressing the relevant function key.

The type of program assembly presents programming problems due to the need for continuous movement of the balls. On the 64 there's no problem where sprites are available. On the C16, this means left again. The author has tackled this problem well and the motion of the balls is smooth and convincing. Some of the collisions are difficult not according to Newton's laws — as was the 64 version — but the accuracy was too distracting. The standard of coding was very high.

Unlike most C16 games, this program offers real music. I found this game highly enjoyable and a good quality standard. M.W.

Price: £7.95

Publisher: Bubble Box

Address: 67 Hyde St, Tisbury, Wilt TS16 3BN

G16



Hawthorn Air Traffic Control

"Aircraft A reduce speed to 150 knots, head 240 right and reduce altitude to 6000 ft. Aircraft Q reduce speed to 150 knots, course steady. No, increase altitude to 6000 ft as it is not in conflict with aircraft B coming to vary (as at 0200 ft, as the last quote says, Aircraft J as you have a show down) (as turn 180 left and head to LAM) (etc).

This is a typical couple of minutes when playing Hawthorn's Air Traffic Control for the Intergame. The scenario, as if you haven't guessed by now, is that you control the ATC at Hawthorn and must keep a number of aircraft in order.

Before we start it is not a easy task. It's not just a matter of heading in the right direction and gradually lowering altitude until they are safely landing, you have the awkward task of co-ordinating a number of aircraft all at different heights and positions. Even as the single track you have to deal with is interrupted, landing sequence, radio and communication, a bewildering array of subjects, concepts and controls to master. The small manual is helpful and if you're patient you should find your way around the game as few hours.

If you master the first level (assuming I must admit I have not to do) then you can move on to one of the other seven levels. Again from featuring different sized aircraft of vastly varying descent rates, speeds and manoeuvrability, you will find that aircraft may decline emergency, as which can you miss land that plane is quickly as possible.

A most difficult and interesting simulation but one you will either enjoy or wish not to touch. I suggest that you try it out and see. C.G.

Price: £7.95

Publisher: Revision Computers

Address: 65A St Mary's St, Wellingford, Oxon

ENTERPRISE



Gefuria

In this space game you control a rocket on the left of the screen and both background and objects scroll in from the right. The graphics are good and use the screen capably effectively. A considerable amount of movement up to the centre of the screen is allowed, hence you can manoeuvre around the dangerous border of alien.

The music comes towards you at varying speeds and provides odd movements which mean you have to keep your own about you. There are some imaginative creatures, like the hairy and ragged plus some silly ones like beeping beepers, which are worthy mention. Sometimes the creatures simply pass by and you have to avoid them but really you are faced with a pattern exclusive to the particular alien.

My son, a hardened arcade game player, managed one out of the 10 screens on offer and this there was little chance to go on. There are options, however, to make the game more difficult as you can adjust the speed of the game at the beginning. There is also a demonstration mode which goes through the whole sequence and shows a defeat procedure at the end which presumably allows you to go round again and shoot up more points. All scoring and screen status is shown in a well laid out display.

Not bad if you want an underlining game that allows you to make last progress. M.P.

Price: £6.95

Publisher: Karna

Address: Poughdown, Berkshire

MSX



Match Fishing

Oh, I'll admit I was surprised to see that this program contained a pretty large amount of BASIC, but I was determined not to hold this against it, since one of my favourite games (Apprentice by Red Kelly) was written in much the same way.

However, when I do hold against it is the almost complete lack of content, excitement and action involved in the game.

Up to eight people can play (as you imagine eight people crowded around the Spectrum keyboard!), and once you've chosen your line, type of line, and one of well-bait, all you have to do is sit and look at an increasingly very good picture of a lake, whilst waiting for your "pop". Other members I suspect missed the lake edge to fish. You then leap to the keyboard, press the relevant function key, and are rewarded with a picture of a little fish swimming towards a fisherman on a bank.

By pressing the appropriate key you can attempt to hook the little fish (which I failed to do, but I give up quite quickly out of sheer boredom).

The price release makes me say all sorts of useful words are available to the customer, but I can't imagine a fishing enthusiast being lured to the screen by this, and for the non-enthusiast it's boring as the weather.

Such sports lend themselves to computer games, but on the evidence of this one, fishing is probably the least suitable sport I can think of. C.J.

Price: £5.95

Publisher: Alligata

Address: Orange St, Sheffield

SPECTRUM



MACHINE CODE — THE EASY WAY

In the second part of David Ellis's new series, we get down to the nitty-gritty of machine code programming

At the last week's "operation and assembly" session, it's now time to get down to some machine code programming. Before making a start though, there are a few things that need sorting out.

Firstly, where will the machine code programs reside in memory?

As the BASIC program is stored from location 368 upwards it will obviously need to be somewhat higher than this. If the cassette buffer is used then this will use locations 10000 (24074) onwards. If the disc system is used then this will reduce this figure by a further 1280 bytes to 38726 (24950). Using the save from say 30000 (21750) to 38000 (24470) will give some 8000 bytes for machine code programs, and will leave nearly 30,000 bytes for any BASIC programs, which in both cases should be more than ample.

For the purpose of these articles I shall use locations 30000 (21750) onwards for the demonstration machine code programs. If you wish to prevent just machine code programs from being overwritten by a large BASIC program then the use of the MEMOPLY command will set a "marker" at the beginning of the machine code program, thereby protecting it. See MEMOPLY so one has then the start of the machine code program — in our case there-

fore this will be MEMORY 20000.

Now how do we get the machine code program into memory?

One way is to use an assembler program, which will also take a lot of the hard work out of machine code programming. However, I am assuming that most of you will not have an assembler, so we shall be doing it the hard way by hand assembling the program and then POKEing the machine code numbers into memory with the help of a small BASIC program.

For small programs, hand assembling is quite satisfactory. If you are well organised then quite large programs can be tackled, although the use of an assembler would be advisable.

As for the actual machine code numbers, the machine code instructions will be entered in decimal, and addresses will be entered in hexadecimal. The reason for using hex with the addresses will soon become apparent. If you don't understand hex then, it really makes no difference. The CPC-400 will do all the converting that's needed.

The BASIC program to place the machine code numbers in memory will be as follows:

The highest usable memory location for BASIC is set at 47520 (27096) in line 10, and location 0 is set at 47100 (26800), the start of the machine code program. The list of machine code numbers is then placed in DATA statements (starting at line 100), and these are then POKE'd into memory in line 30. The memory address is then incremented until the value -1 is read, which signifies the end of the list of machine code numbers.

I shall refer to this program as the BASIC loader. The only difference between each program will be the list of numbers held in the DATA statements, starting at line 100, so there will be the only lines that I shall give you in future.

The simplest machine code program that you could write would be:

100 DATA 200

200 is the 200 code for RETURN or RET for short. This will return the program to its original calling place. If this was a CALL from BASIC then a return would be made back to BASIC. Since the BASIC loader had line 100 as given above — 2104 the program, then type:

CALL 47520



HARDWARE



Mike Roberts takes a good look at the latest in Atari's long line of machines and he likes what he sees!

The Atari computer system is probably the oldest computer still in use — having a basically unchanged design from its original spec back in 1979 (800). Then the 16K, Atari 400 or 800 cost a lot of money — but it was worth it. The 800 could be a real cash expenditure up to 44K by plugging 16K expansion cards into a front in the rear of the machine, and 44K of memory was a huge amount then!

Although the things that made a computer attractive at that time was a cartridge port. Cartridges had been used on some earlier machines — notably the Eddy Successor — with little success. Nolan Bushnell carried over the philosophy of the Atari VCS video game to the computer industry. What also changed a lot of things was the idea of the hardware manufacturer marketing his own software.

At the time of the computer's launch, a cartridge called Star Raiders was also released. This sold Atari to the point where that Acornsoft Star sells 60K, now, and the game had a similar earth shattering impact as the Acornsoft product.

Since then, Nolan Bushnell sold off Atari to Warner Communications where it started to lose like a stone. They went through the XL period, and now that Jack Tramiel has bought the

company, the XE series is upon us. At the time of going to press, however, only the 1300XE is likely to see the light of day.

The internal architecture is similar to the original 800 — though the layout and construction is much more rationalized for cheaper manufacture. The old Atari had a separate board for everything, a memory board, a video board, a processor board, and so on. All plugged into a central metal chassis to guard against lightning.

The 1300XE has a single board with all the components on a sandwich between two layers of metal sheet. There is the same video, sound, and I/O chips — C170A, ANTIC, POKEY. The notes that all Atari software will run without modification, as far as we know, and Atari computers have a huge software library. The video circuitry has been cleared up a bit to produce a clearer display, but this should be a transparent modification. The electronics are slightly different for more efficient manufacturing — in line with the new Tramiel philosophy of low overheads to keep profitability up.

The 1300XE has 128K of RAM. The RAM takes up most of the circuit board — 16 chips in all. There is also a RAM manager called FREDDY — Atari always give their custom chips odd names. Much better than comparing the chips to their lesser designations.

The main processor is a 6800C running at about 1.79 MHz, but the computer ends up running much slower due to the

video chip. This chip can theoretically only access 64K of memory at one time. So how does the XE do it?

Well, the 800X can only access 64K at any one time — the trick is to switch it in and out when you don't need it, a concept familiar to C64 owners. It has 64K RAM, 20K ROM, and 4K I/O. It's like having a book and only being able to see two pages at once. The Atari 1300XE has 64K RAM, 64K RAM, and 24K of ROM. It hasn't a clue where the I/O is. The basic switching is therefore more complex.

You will find about 16K free for Basic programs. So what about the other 96K? — I hear you ask, 24K is inaccessible except from machine code, because that is what holds behind the 24K ROM used for Basic etc. The other 64K is known as the Extra Memory. This can be brought into your programs in 16K chunks. The 16K that is "paged out" is the second version in the memory map from 24000 to 57999. This is just above where the 64K space normally resides in memory.

In the section of memory you can look at either the original (download) 16K of memory or the extra memory. The extra memory (64K) is divided up into 16K chunks. You can flip up which memory chunk should occupy the memory area (page) and in the linked memory area.

Another refinement of this system is allowing the user program or the video program to look at the memory. This

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COMPUTERS IN SOCIETY



This week our telecommunications specialist, Doreen Maylor, introduces herself and explains why she became interested in this fascinating area of computing

I was suggested to me that I write an article to introduce myself and explain my views on telecommunications and the micro-computer. I agreed without realising that my views on telecommunications may be slightly different from the majority of HCC's readers as I am profoundly deaf. No doubt it was felt that my experience could prove useful as I have been looking into various computer/modem combinations so as to find a cheap and efficient set up which will be suitable for the hearing-impaired.

As a housewife with a part-time job as an information clerk, I first became involved in telecommunications in 1981 when I was asked to participate in the William Project. This was set up to investigate the various ways in which the telephone could be used by the hearing-impaired. The Department of Industry funded the project to the sum of \$8,000 pounds.

Principally the project concentrated on the telephone telephone facilities provided by Telecom Gold and Fremantle together with assistance of the Vozel (a dedicated terminal used by the deaf for some time).

Since the termination of the project I have begun to explore some using computer back-up via the telephone together with the chat mode facilities found in the electronic mailbox as very attractive to the hearing-

impaired and has proved to be a very effective form of communication.

Consequently I am hooked on telecommunications and have set up a Telecom Gold/Free Telecom/Modem system in the vicinity of Leeds, comprising 16 lines (land and hearing, private, air-line and French) and I am in the process of compiling information on various types of home computer and modem capable of being used for telecommunications by the hearing-impaired. I am particularly interested in modems since they are becoming more sophisticated and relatively cheap.

My current set up comprises a BBC Model B1, Free Telecom Modem (V21, V22, Bell 103) and Computer Speeches (speeches by using a Transducer BTA, speech-coupler type modem which was used mainly for Telecom Gold).

Later I acquired a Philips TX75/EX1200 speech coupler when I joined Marston which increased the speed of downloading in Telecom Gold. Problems occurred because the modems did not have rather expensive to hold the telephone handset so it was susceptible to background noise from TV, radio etc and consequently suffered considerable deterioration of tone. While having a good time using some chat mode on Telecom Gold I was frequently checked out of chat mode which necessitated rapidly retelling and logging-

on again so as not to lose my friend who may have become frustrated by my disappearance.

The problem arose at first some time before it dawned on me that when I brought the signal processor was operating on from chat mode I overcame the problem by the generous assistance of Bill-Tek (voice handler) and phone cup of the mode.

That kept me going for a while until I heard that Paul of Bradford was bringing out a hand-wired modem at which I considered was a reasonable price. I managed to borrow per for field testing and found it tied up to experience.

I now have a "Black Mirror" containing No.2 Free Telecom TX75/EX1200, Tandem T41446 (virtually complete), Transphone 300A, speech-coupler, GEC Data Modem, KX75/TX1200 with which I am hoping to set-up a bulletin board by the hearing-impaired. Recently I have been playing about with BBC PC-320A (gap computer), Open CS-41 speech coupler (battery operated) and C84 with Commodore modems.

The use of home computers, in my case, has opened-up a whole new world of telecommunications long closed to me and other hearing-impaired individuals. Being able to use the telephone to contact friends both deaf and hearing has made tremendous changes in my life. I have made many new friends



some of whom I have never met other than online. However, my husband will tell you there's one big snag: COST. On average it takes seven times longer to transmit a typed

message than a voiced message so you can imagine that I am (well, he's not having to pay seven times your average telephone bill!)

I currently subscribe to

Primal/Murphy, Telecom Gold (B.T. electronic mailbox) and the NINE Four Square.

The Voice Service was set up by Royal National Institute for the Deaf, London. It is manned

by a hearing telephone operator instead of just an ordinary switchboard, the operator has a monitor and telephone linked to micro-computer so any subscriber (hearing-impaired) is able to contact the bureau by way of Primal's remote telephone or micro-computer at TX75/201300 to convey message to a hearing person. The operator observes the message typed by the subscriber on the screen and passes the message to the hearing person via ordinary telephone and vice versa.

The disadvantage of this is that it is based in London and is expensive for people living outside London though it is useful in an emergency. It is also very expensive to run, and lacks privacy as the operator is a part to the conversation. It is able to 24 hour service and, finally, no provision is made for users with only a 300/300 set-up so the service is restricted to TX75/201300.

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DRAWING THE LINE



Part four of our BASIC conversion series finds Peter Green with spots before his eyes

This has been a very difficult article to put together. In the beginning there was BASIC, and it was good, but it ran on big computers with teleprinters, and a laser dot graphics. Then Chuck Petelin decided that he had had, and lo, the PET was born.

There lots of other manufacturers built home computers. All using BASIC with only minor changes. Others we've covered in past ones to three but with widely differing ideas about the way to implement graphics operations. As a result of everyone thinking they knew best, the graphics commands from five different BASICs look like they came from five different languages.

If could fill two weeks of PCW just discussing all the subtle details of graphics on our five machines. Here can I do it one two or three pages? I've decided to compile a table of the most basic operations available, which is printed in two parts, this week and next week. You identify the operation in the second machine column, then see how to convert it by looking in the third column. Next week you'll be able to collect and keep part two.

This may not be of much help in some cases. For example, listing options are possible on the Commodore but involve manipulating the serial number, and we'd need a large article to explain serial numbers. Again, although the C64 can have excellent graphics in machine code, most BASIC's virtually refuse, to most of

the table is unhelpful.

Next comes that may help you. First, entrance uses different co-ordinate systems. In X, Y means the Amstrad is 0-1279, 0-899; the BBC Micro, 0-1279, 0-819; the C64 is 0-353, 0-399; the Cric, 0-399, 0-199; and the Spectrum 0-353, 0-173.

The Amstrad may have eight text windows with different mappings, you spot these by a 'w' after the BASIC keywords, where a 'u' is the window number.

On the BBC and Amstrad, characters 240-123 are non-definable on power-up, some IIRCA require memory to be reserved using 'FX', 'G' and 'SHMEM'. AFTER commands respectively. These two macros allow the first row of looking into to be altered using 'FX', 'G' and 'SH', and 'SHMEM' etc.

Where operations are performed by PRINTing strings of control characters and pass meters using CHR\$, a whole set of these can be run together into a long PRINT statement, such as PRINT CHR\$(12), CHR\$(23), CHR\$(87) which clears the screen and starts off transparent mode on the Amstrad. On the BBC Micro, PRINT CHR\$(4) can be observed to VDU followed by a string of numbers. Here the parentheses is what a comma after a number means "load in a single byte", while a semicolon means "load in a low-byte, high-byte ordered pair".

Colour and cursor control codes on the C64 are embedded in PRINT statements and appear as odd symbols in the

listing. Magazines usually provide a key or include BASIC statements to interpret the commands.

Screen mode table

Amstrad

- Mode 0 16 colours, 140 by 200, 30 by 35 text
- Mode 1 4 colours, 320 by 200, 40 by 35 text
- Mode 2 1 colours, 640 by 200, 40 by 25 text

BBC micro

- Mode 0 1 colours, 640 by 256, 40 by 32 text
- Mode 1 4 colours, 320 by 256, 40 by 32 text
- Mode 2 16 colours, 140 by 256, 20 by 32 text
- Mode 3 1 colours, text only, 40 by 32
- Mode 4 1 colours, 320 by 256, 40 by 32 text
- Mode 5 4 colours, 160 by 256, 20 by 32 text
- Mode 6 1 colours, text only, 40 by 32
- Mode 7 Teletext mode 40 by 25 text, fixed graphics, serial numbers

Commodore 64

- Text screen to 40 by 25 with 16 colours. Other modes beyond the scope of this article

Coleco Adam

- Text 39 by 37 text screen, 640 columns screen, but option 0 reserved for serial numbers, 8 colours
- Level 0 As TEXT using standard character set
- Level 1 As TEXT using alternate character set
- Level 8 colour, 240 by 200

Spectrum

- No modes 1 colours (16 of BRIGHT is used, 256 by 178, 32 by 24 text).

[illegible]

GUT OUT AND KEEP. PART 2 NEXT WEEK.

[illegible]

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Both these books are complete in themselves, but there is a disc available for each book to save you typing in all the programs and data files. Each disc costs £9.00, post free. (Please specify 40 or 80 track.)

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BOOKS



Wardrobe
Accessories Club

I have been a Windows user for several years now but like many other such users I have a lot of standard layouts which serve my purposes and have therefore never delved any deeper into the many features of this, friendliest, of microprocessors. The Windows Applications Guide by Paul Beverly is aimed at users such as me.

The guide is 154 pages, 44 mm thick, and is designed to be a handy reference for the student. It is divided into three parts. The first part, "Introduction," contains a brief history of the Worldview program and the author's reasons for writing the first time story. Secondly, it contains a series of questions and answers that are designed to help the student understand the program of Worldview. The third section is a series of ten and two week story guides to make the student's work in the Worldview story, and finally there is a section which contains some other material such as a list of recommended reading and a list of recommended films.

Apart from the treasure trove of information, the book also contains many subnotes and programs to aid the Windows user. One program will convert VHS files into Windows files and vice versa, another assembly language program gives the facility to produce multiple copies. Should you not be the world's greatest typist, or just lack the time, then all of the programs can be purchased for \$5.95 on a floppy disc.

The Windows Application guide makes essential reading for the user who would like to make the most of his Windows office.

Publication Information **Microscopic** **Computer**

Address: 6 Upper King Street,
Newcastle NE1 1PL.

Assessment



BASIC ROW User Guide

If you are a very serious BAC user or you have a very important brand then you might want to understand what is going on inside the machine.

This book tries to give you a full description of the workings of the BASIC book as a reference and with a considerable amount of detail where full explanations are required.

I have to confess that Mr. Fleming's writing style is very good. Within seconds he had me understanding a number of terms and concepts over which I have struggled for a number of months.

This book covers all the information you could possibly use and includes such details as the 4800 assembler, BASIC's use of memory, expressions, relations, program control, how to add new commands, how to use overlay techniques to squeeze even more from the BASIC's memory and how to recover programs corrupted by system bugs.

What I didn't expect from the book was a series of program listings but there are a number of fascinating utility programs of all types.

The main section is the fully detailed reference to all the BASIC subroutines and this will be of enormous help to a programmer or student of microprocessor control. **B.O.**

[illegible]

Abstract

Address: 12, Riverside Close,
Cotnam, Cambridge CB4 0PE



Guide to the AAC

In this 200-page book you are offered an "at-a-glance picture of the fundamental concepts of the EPC BOMs". Well, I'm sure that all the information is there, but finding it isn't easy.

Then kept me to do far too much in far too little space and in the process I find that it feels miserable.

When I first started in I could only believe that it was within the second copyright prosecution in some way. The first and chapter deals with the operating system ROMs and a set of notes which you can't really understand without a full disassembly of the ROMs in front of you. I'm aware that to provide this would be illegal but the text continues on to all the other workings of the ROMs are quite plain and easy to understand.

The book also lacks any kind of overview which could explain the features of the EEC system and how EEC programmes have decided to implement these features.

It seems to cover both the operating system ROM and the BASIC chip. There is a huge imbalance between the two however. The OS is given about 100 pages while the BASIC chip is given less than 20. This means that all those who might have considered buying this book instead of two more detailed, and expensive, books will be very disappointed.

Overall, this host served no purpose but rather than make things more complex. **TLX**

Figure 1 consists of four bar charts arranged in a 2x2 grid. Each chart shows the percentage of respondents for different levels of agreement with the statement 'The government should do more to protect the environment'. The levels of agreement are: 'Strongly agree', 'Agree', 'Disagree', and 'Strongly disagree'. The charts are labeled as follows:

- Top-left: 'Strongly agree' (Percentage of respondents)
- Top-right: 'Agree' (Percentage of respondents)
- Bottom-left: 'Disagree' (Percentage of respondents)
- Bottom-right: 'Strongly disagree' (Percentage of respondents)

The data is summarized in the following table:

Level of Agreement	Percentage of Respondents
Strongly agree	45%
Agree	35%
Disagree	15%
Strongly disagree	5%

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10 OUT OF 10

LOWER!



Please note: All the Spectrum listings in *PCW* are printed as a special feature. All user defined characters are printed as capital letters for with an asterisk. In order to type them into your computer you need to place the machine in *CHARROM* mode and then press the capital letter indicated. If you follow these instructions to the letter the graphics characters will be shown on screen when you run the program.



Andrew Bird's game has you pitting your wits against the computer: which card comes next?

If you have ever wanted to appear on a million TV programmes, play *Four Cards Right*, this never quite gets there, then that is just the thing to cheer you up (switch on, sit back and try to move) the computer is now dealing the 10 highly shuffled cards.

You will know of course that the idea is to predict whether the next card is the sequence is higher or lower. (Hint: the previous card should not state the end of the line you may consider yourself as the same class as the game *Doc Hickey*.)

How it works

1-48 GC612 instructions, on 40 Kbytes
 35 1-30 loops
 160-180 card file cards
 190-230 driver games
 240-300 main loop
 3100-3150 driver and screen man
 3200-3250 screen card
 3300-3350 print card face

48K-64K
 1980-2000
 2000-2050
 2050-2100
 2100-2150
 2150-2200
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 2250-2300
 2300-2350
 2350-2400
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 38650-38700
 38700-38750
 38750-38800
 38800-38850
 38850-38900


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1000 LET a=0g+50: LET a=y1g1
1010 PRINT AT a,n1: PAPER 4: INK 0: " C":AT a+1,n1:END:AT a+2,n1: "I":AT a+3,n1: "E
  "
1020 INK 0: PLOT y1g1=0+32,120-x1g1=0
1030 DRAW -4,-4: DRAW 0,-80: DRAW -32,-4: DRAW 12,-4: DRAW 0,-14: DRAW 4,-8: DRAW
  32,0: DRAW 4,8: DRAW 0,32: DRAW -4,4: DRAW -32,8
1040 PAPER 4: INK 7: PRINT AT a,n+5: "Higher":AT a+1,n+4: "or Lower":AT a+2,n+5: "t
  hen a":AT a+3,n+5: " "
1050 STOP .02,30
1100 RETURN
1110 REM Draw man
1120 INK 0: PLOT y1g1=0+32,120-x1g1=0
1130 OVER 1: DRAW -4,-4: DRAW 0,-80: DRAW -32,-4: DRAW 12,-4: DRAW 0,-14: DRAW 4,
  -8: DRAW 32,0: DRAW 4,8: DRAW 0,32: DRAW -4,4: DRAW -32,8: OVER 0
1140 FOR i=0 TO 30: PRINT AT i,n1: " " NEXT i
1150 RETURN
1160 REM Turn Card
1200 PLOT y1g1=0+1,140-x1g1=0
1210 OVER 1: DRAW 0,30: DRAW 20,0: DRAW 0,-30: DRAW -20,0: OVER 0
1220 PRINT AT x1g1,y1g1: PAPER 4: INK 3: BRIGHT 1: " :AT x1g1+1,y1g1: " :A
  T
  x1g1+2,y1g1: " :AT x1g1+3,y1g1: "
1230 STOP .01,40
1240 PRINT AT x1g1,y1g1: PAPER 4: INK 7: " :AT x1g1+1,y1g1: " :AT -1g1+2,y
  1g
  1: " :AT x1g1+3,y1g1: "
1250 STOP .01,40
1260 PRINT AT x1g1,y1g1: PAPER 4: INK 7: " :AT x1g1+1,y1g1: " :AT -x1g1+2,y
  1g
  1: " :AT x1g1+3,y1g1: "
1270 STOP .01,40
1280 PLOT y1g1=0+1,140-x1g1=0
1290 DRAW 0,30: DRAW 20,0: DRAW 0,-30: DRAW -20,0
1300 RETURN
1310 REM Print card face
1320 IF c0g,2)=0" OR c0g,2)=0" THEN INK 2: GO TO 1320
1330 INK 0
1340 PRINT AT x1g1,y1g1: PAPER 7: c0g,1: " :c0g,2)
1350 RETURN
1360 REM Card check
1400 FOR i=1 TO 10: IF c0g,1)=p0i THEN GO TO 4000
1410 NEXT i
1420 LET lasted=
1430 FOR d=1 TO 10: IF c0g,1)=p0d THEN GO TO 4000
1440 NEXT d
1450 LET thired=
1460 IF gu=0 THEN GO TO 4100
1470 IF lasted=thired THEN GO TO 5000
1480 GO TO 4000
1490 IF lasted>thired THEN GO TO 5000
1510 GO TO 4000
1520 REM Correct
1530 POKE 50007,10: POKE 50010,10: LET d=USR 50000
1540 FOR i=1 TO 10: POKE 50010,40+i*2: LET d=USR 50000: PAUSE 2: NEXT i
1550 GO TO 1000
1560 REM Wrong
1570 POKE 50007,100
1580 FOR i=1 TO 10: POKE 50010,70+i*2: LET d=USR 50000
1590 FOR d=1 TO 20: NEXT d: NEXT i
1600 PAPER 4: CLS
1610 IF c0g THEN PRINT AT 10,10: INK 0: "Please Wait"
1620 NEXT k
1630 REM End
1700 INK 0: FOR i=4 TO 12: PRINT AT i,0: PAPER 0: " " NEXT i
1710 PLOT 64,70: DRAW 0,50: DRAW 120,0: DRAW 0,-50: DRAW -120,0

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7040 PRINT AT 3,2: PAPER 3: INK 3:"THAT WAS YOUR":AT 9,2:"LAST ATTEMPT":AT 11,2:
"YOU HAVE FAILED"
7050 POKE 50007,20: FOR I=1 TO 100: POKE 50010,I/2: LET A=USR 50000: NEXT I
7060 PRINT AT 21,5: PAPER 3: INK 1:" Press any key for another go "
7070 BEEP .1,5: PAPER 3: CLS : GO TO 3
7099 REM Non
8000 FOR A=1 TO 50: NEXT A: BORDER 0: PAPER 0: CLS : POKE 50007,10
8010 BRIGHT 1: INK 0
8015 PLOT 0,72: DRAW 0,50: DRAW 130,0: DRAW 0,-50: DRAW -130,0
8015 PRINT AT 0,2:"CONGRATULATIONS":AT 10,2:"YOU VE DONE IT!"
8020 FOR I=1 TO 100
8030 RANDOMIZE : BORDER 3: BORDER 4: BORDER 2: BORDER 4: BORDER 3: BORDER 1: BOR
DER 0
8040 LET A=USR 50000
8050 NEXT I
8060 POKE 50007,20: FOR I=1 TO 50: POKE 50010,70-I: LET A=USR 50000: NEXT I
8070 BRIGHT 0: GO TO 7060
8100 STOP
8199 REM Instructions
8200 LET I0="If you have ever wanted to be one certain television program "P
aying Your Cards Right",then this game is for you.
      The idea is to predict whether the next card is a sequence of ten
      is higher or lower than the previous one. You have 3 goes."
8210 BORDER 2: PAPER 3: CLS : INK 7
8215 PRINT AT 0,0: PAPER 1:" T E N   O U T   O F   T E N " : PRINT ""
8220 FOR I=1 TO LEN 0
8230 PRINT 0(I)
8240 IF 0(I) < 0 THEN 82 THEN BEEP .01,10: DEEP .005,50
8250 IF I=32 OR I=44 OR I=56 OR I=68 OR I=80 OR I=92 OR I=104 OR I=116 OR I=128 OR I=140 OR I=152 OR I=164 OR I=176 OR I=188 OR I=200 OR I=212 OR I=224 OR I=236 OR I=248 OR I=260 OR I=272 OR I=284 OR I=296 OR I=308 OR I=320 OR I=332 OR I=344 OR I=356 OR I=368 OR I=380 OR I=392 OR I=404 OR I=416 OR I=428 OR I=440 OR I=452 OR I=464 OR I=476 OR I=488 OR I=500 OR I=512 OR I=524 OR I=536 OR I=548 OR I=560 OR I=572 OR I=584 OR I=596 OR I=608 OR I=620 OR I=632 OR I=644 OR I=656 OR I=668 OR I=680 OR I=692 OR I=704 OR I=716 OR I=728 OR I=740 OR I=752 OR I=764 OR I=776 OR I=788 OR I=800 OR I=812 OR I=824 OR I=836 OR I=848 OR I=860 OR I=872 OR I=884 OR I=896 OR I=908 OR I=920 OR I=932 OR I=944 OR I=956 OR I=968 OR I=980 OR I=992 OR I=1000 OR I=1012 OR I=1024 OR I=1036 OR I=1048 OR I=1060 OR I=1072 OR I=1084 OR I=1096 OR I=1108 OR I=1120 OR I=1132 OR I=1144 OR I=1156 OR I=1168 OR I=1180 OR I=1192 OR I=1204 OR I=1216 OR I=1228 OR I=1240 OR I=1252 OR I=1264 OR I=1276 OR I=1288 OR I=1300 OR I=1312 OR 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I=12936 OR I=12948 OR I=12960 OR I=12972 OR I=12984 OR I=12996 OR I=13000 OR I=13012 OR I=13024 OR I=13036 OR I=13048 OR I=13060 OR I=13072 OR I=13084 OR I=13096 OR I=13108 OR I=13120 OR I=13132 OR I=13144 OR I=13156 OR I=13168 OR I=13180 OR I=13192 OR I=13204 OR I=13216 OR I=13228 OR I=13240 OR I=13252 OR I=13264 OR I=13276 OR I=13288 OR I=13300 OR I=13312 OR I=13324 OR I=13336 OR I=13348 OR I=13360 OR I=13372 OR I=13384 OR I=13396 OR I=13408 OR I=13420 OR I=13432 OR I=13444 OR I=13456 OR I=13468 OR I=13480 OR I=13492 OR I=13504 OR I=13516 OR I=13528 OR I=13540 OR I=13552 OR I=13564 OR I=13576 OR I=13588 OR I=13600 OR I=13612 OR I=13624 OR I=13636 OR I=13648 OR I=13660 OR I=13672 OR I=13684 OR I=13696 OR I=13708 OR I=13720 OR I=13732 OR I=13744 OR I=13756 OR I=13768 OR I=13780 OR I=13792 OR I=13804 OR I=13816 OR I=13828 OR I=13840 OR I=13852 OR I=13864 OR I=13876 OR I=13888 OR I=13900 OR I=13912 OR I=13924 OR I=13936 OR I=13948 OR I=13960 OR I=13972 OR I=13984 OR I=13996 OR I=14000 OR 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I=15096 OR I=15108 OR I=15120 OR I=15132 OR I=15144 OR I=15156 OR I=15168 OR I=15180 OR I=15192 OR I=15204 OR I=15216 OR I=15228 OR I=15240 OR I=15252 OR I=15264 OR I=15276 OR I=15288 OR I=15300 OR I=15312 OR I=15324 OR I=15336 OR I=15348 OR I=15360 OR I=15372 OR I=15384 OR I=15396 OR I=15408 OR I=15420 OR I=15432 OR I=15444 OR I=15456 OR I=15468 OR I=15480 OR I=15492 OR I=15504 OR I=15516 OR I=15528 OR I=15540 OR I=15552 OR I=15564 OR I=15576 OR I=15588 OR I=15600 OR I=15612 OR I=15624 OR I=15636 OR I=15648 OR I=15660 OR I=15672 OR I=15684 OR I=15696 OR I=15708 OR I=15720 OR I=15732 OR I=15744 OR I=15756 OR I=15768 OR I=15780 OR I=15792 OR I=15804 OR I=15816 OR I=15828 OR I=15840 OR I=15852 OR I=15864 OR I=15876 OR I=15888 OR I=15900 OR I=15912 OR I=15924 OR I=15936 OR I=15948 OR I=15960 OR I=15972 OR I=15984 OR I=15996 OR I=16000 OR I=16012 OR I=16024 OR I=16036 OR I=16048 OR I=16060 OR I=16072 OR I=16084 OR I=16096 OR I=16108 OR I=16120 OR I=16132 OR I=16144 OR I=16156 OR I=16168 OR I=16180 OR I=16192 OR I=16204 OR I=16216 OR I=16228 OR I=16240 OR I=16252 OR I=16264 OR I=16276 OR I=16288 OR I=16300 OR I=16312 OR I=16324 OR I=16336 OR I=16348 OR I=16360 OR I=16372 OR I=16384 OR I=16396 OR I=16408 OR I=16420 OR I=16432 OR I=16444 OR I=16456 OR I=16468 OR I=16480 OR I=16492 OR I=16504 OR I=16516 OR I=16528 OR I=16540 OR I=16552 OR I=16564 OR I=16576 OR I=16588 OR I=16600 OR I=16612 OR I=16624 OR I=16636 OR I=16648 OR I=16660 OR I=16672 OR I=16684 OR I=16696 OR I=16708 OR I=16720 OR I=16732 OR I=16744 OR I=16756 OR I=16768 OR I=16780 OR I=16792 OR I=16804 OR I=16816 OR I=16828 OR I=16840 OR I=16852 OR I=16864 OR I=16876 OR I=16888 OR I=16900 OR I=16912 OR I=16924 OR I=16936 OR I=16948 OR I=16960 OR I=16972 OR I=16984 OR I=16996 OR I=17000 OR I=17012 OR I=17024 OR I=17036 OR I=17048 OR I=17060 OR I=17072 OR I=17084 OR I=17096 OR I=17108 OR I=17120 OR I=17132 OR I=17144 OR I=17156 OR I=17168 OR I=17180 OR I=17192 OR I=17204 OR I=17216 OR I=17228 OR I=17240 OR I=17252 OR I=17264 OR I=17276 OR I=17288 OR I=17300 OR I=17312 OR I=17324 OR I=17336 OR I=17348 OR I=17360 OR I=17372 OR I=17384 OR I=17396 OR I=17408 OR I=17420 OR I=17432 OR I=17444 OR I=17456 OR I=17468 OR I=17480 OR I=17492 OR I=17504 OR I=17516 OR I=17528 OR I=17540 OR I=17552 OR I=17564 OR I=17576 OR I=17588 OR I=17600 OR I=17612 OR I=17624 OR I=17636 OR I=17648 OR I=17660 OR I=17672 OR I=17684 OR I=17696 OR I=17708 OR I=17720 OR I=17732 OR I=17744 OR I=17756 OR I=17768 OR I=17780 OR I=17792 OR I=17804 OR I=17816 OR I=17828 OR I=17840 OR I=17852 OR I=17864 OR I=17876 OR I=17888 OR I=17900 OR I=17912 OR I=17924 OR I=17936 OR I=17948 OR I=17960 OR I=17972 OR I=17984 OR I=17996 OR I=18000 OR I=18012 OR I=18024 OR I=18036 OR I=18048 OR I=18060 OR I=18072 OR I=18084 OR I=18096 OR I=18108 OR I=18120 OR I=18132 OR I=18144 OR I=18156 OR I=18168 OR I=18180 OR I=18192 OR I=18204 OR I=18216 OR I=18228 OR I=18240 OR I=18252 OR I=18264 OR I=18276 OR I=18288 OR I=18300 OR I=18312 OR I=18324 OR I=18336 OR I=18348 OR I=18360 OR I=18372 OR I=18384 OR I=18396 OR I=18408 OR I=18420 OR I=18432 OR I=18444 OR I=18456 OR I=18468 OR I=18480 OR I=18492 OR I=18504 OR I=18516 OR I=18528 OR I=18540 OR I=18552 OR I=18564 OR I=18576 OR I=18588 OR I=18600 OR I=18612 OR I=18624 OR I=18636 OR I=18648 OR I=18660 OR I=18672 OR I=18684 OR I=18696 OR I=18708 OR I=18720 OR I=18732 OR I=18744 OR I=18756 OR I=18768 OR I=18780 OR
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RACEHORSE TRAINER



You've got the chance to win or lose a lot of money in this exciting racing game from Sean Conway

This is a simulation game for the C64 in which you play the part of a racehorse owner acting on behalf of a syndicate. You have £100,000 to buy, train and race your horses.

You can only buy one horse at a time and bidding is very fierce at the auction house. (Shed Alert!) tries to push the price up. You must then train your horses which is expensive although you can choose to spend less money and run badly trained horses.

On the day of the race you can place bets of up to £3,000 and winnings are displayed at the end of the race. You can own a maximum of five horses.

The members of the syndicate are ruthless so if you run out of money you will be fired.

Variables

LP male loop
H000 horse owner
H001 horse racing
H002 horse owned flag
H003 names of horses owned
V000 horse's value
C number of horses owned
C000 other horse names
X00 player's value
M money left
R00 number of horses for auction
C horse chosen for bid
C1 your bid
C2 highest bid
C3 horse chosen to sell
T00 training value
T000 rating of horse for race
C000 race category
U000 race difficulty
A000 ratings of other horses in the race
P000 prices of horses in the race
X0 horses to bet on
W00 winner of race
H000 movements divider
X0 amount bet
P00 horses to chase
X000 split 1 is co-ordinator
3000-3034,3040
W00 winnings on bet
W000 potter money
Y display chip

How it works

00 auction trays
01 anti loop
02 anti variables
030 sets up screen
100-900 title page
200-300 input data, general considerations
300-399 horse owned
400-499 pick horse to buy, auction, bidding
499-499 horse bought message
500-549 sell horse
550-599 pick type of training for each horse
600-699 regular horse training
700-799 other horses in race
800-899 other horses in race, events, bidding
900-949 race announcements
950-990 run race by moving screen horizontally
990-999 final winners, prize winnings
9999 scores a co-ordinator of screen
1000 options loop
1000-2000 run through money routine
2000-2999 bookkeep, and more
3000-3999 print game routine
3000-3999 split time for horses
3000-3999 horse's name and value, etc
3000-3999 horses in race name data



DOI: 10.1002/for

PROGRAM

[illegible]

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530 M=M+CVR(CS)-DSR)
540 HSR(CS)=M*VH(CS)+.5*SP(CS)+.5
545 FOR J=CS+100
550 LET HSR(J)=HSR(J)+1
555 NEXT J
557 HSR(10)=M*VH(10)+.5*SP(10)+.5
560 D=D+1
565 GOSUB 1000
570 REM ***** TRAINING *****
580 IF D=0 THEN PRINT "*****YOU HAVE NO HORSES TO TRAIN" GOTO 590
590 FOR I=1 TO 4:PRINT C(I); " " TRAINING " " I;NEXT I
610 PRINT "***** THESE ARE THE TYPES OF TRAINING TO CHOOSE FROM : -"
615 PRINT "1..VERY GOOD TRAINING = $10,000."
616 PRINT "2..GOOD TRAINING = $5,000."
617 PRINT "3..ADEQUATE TRAINING = $2,000."
618 FOR I=1 TO 3
619 PRINT "*****1 2 3"
620 PRINT "*****WHICH DO YOU WANT FOR "HRS(I);"? "
625 INPUT T(I)
630 DFT(I)=1 THEN M=M-10000:TT(I)=10 IF M<0 THEN GOSUB 1000:M=M+10000
635 DFT(I)=2 THEN M=M-5000:TT(I)=5 IF M<0 THEN GOSUB 1000:M=M+5000
640 DFT(I)=3 THEN M=M-2000:TT(I)=2 IF M<0 THEN GOTO 10000
645 TBL(I)=INT(CVRS(I)+TT(I)*.5)/.5
650 PRINT "*****"
655 NEXT I
660 GOSUB 1000
665 REM***** UPDATE STATISTICS *****
670 IF D=0 THEN GOTO 5
680 FOR I=1 TO 3
685 LET TBL(I)=ML(I)+TBL(I)
690 NEXT I
700 REM*****ENTER RACE*****
705 FOR I=1 TO 4:PRINT C(I); " " RACE ENTRY " " I;NEXT I
710 IF D=0 THEN PRINT "*****YOU HAVE NO HORSES TO ENTER" GOTO 720
715 PRINT "*****THE FOLLOWING ARE THE RACES YOU CAN ENTER YOUR HORSES IN."
720 PRINT " " ENTRY FEE " PRIZE MONEY"
725 PRINT "CAT.1 2,000 10,000"
727 PRINT "CAT.2 1,000 5,000"
729 PRINT "CAT.3 1,000 3,000"
730 PRINT "CAT.4 500 2,000"
735 FOR I=1 TO 4
740 PRINT "*****HIGH CATEGORY RACE FOR "HRS(I);"? "
741 PRINT " (0 = FOR NO RACE )"
745 INPUT T(I)
746 IF T(I)=0 THEN GOTO 5
747 IF T(I)=1 AND M<0 THEN GOSUB 1000:GOTO 730
750 IF T(I)=2 AND M<0 THEN GOSUB 1000:GOTO 730
752 IF T(I)=3 AND M<0 THEN GOSUB 1000:GOTO 730
754 IF T(I)=4 AND M<0 THEN GOSUB 1000:GOTO 730
755 IF T(I)=1 THEN M=M-2000:DH(I)=20
756 IF T(I)=2 THEN M=M-1000:DH(I)=20
757 IF T(I)=3 THEN M=M-1000:DH(I)=20
758 IF T(I)=4 THEN M=M-500:DH(I)=10
760 NEXT I
770 GOSUB 1000
775 IF D=0 THEN GOTO 5
780 REM*****RACE*****
785 FOR I=1 TO 3
790 IF H(I)=0 THEN GOTO 5
795 FOR K=1 TO 4:PRINT C(K); " "
800 IF K=4 THEN PRINT " "
805 IF H(K)=0 THEN GOTO 5
810 FOR L=1 TO 4:PRINT C(L); " "
815 IF L=4 THEN PRINT " "
820 IF H(L)=0 THEN GOTO 5
825 IF L=K THEN PRINT "*****HORSE "H(K);" IS IN THE RACE"
830 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
835 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
840 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
845 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
850 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
855 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
860 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
865 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
870 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
875 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
880 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
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890 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
895 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
900 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
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915 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
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925 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
930 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
935 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
940 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
945 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
950 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
955 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
960 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
965 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
970 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
975 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
980 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
985 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
990 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"
995 IF L=K THEN PRINT "*****HORSE "H(L);" IS IN THE RACE"

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605 FOR I=1 TO 5:READDTE4: I>4:PRINT:
610 FOR I=1 TO 5:
615 LETPYC13=INT(ORND(1)/15)+1
616 IF I=5:AND(CPY13)=PYC23:THEND12:
618 IF I=5:AND(CPY13)=PYC33:THEND12:
617 IF I=5:AND(CPY13)=PYC53:THEND12:
619 NEXT I
620 FOR I=1 TO 5:
625 LET HT4(I)=INT(ORND(1)*40/10)+1
624 LETPRC1(I)=INT(ORND(1)*1)
626 NEXT I
627 LETPRC45=INT(ORND(1)*10)
630 FOR I=1 TO 5:PRINTDTE4(I)*10: SETTING: IF I=PRINT:
635 PRINT"THE BETTING IS AS FOLLOWS 1-":
636 PRINT"1...":JOTA(CPY13):TAB(25):PRC13"/1":
638 PRINT"2...":JOTA(CPY23):TAB(25):PRC13"/1":
639 PRINT"3...":JOTA(CPY33):TAB(25):PRC13"/1":
640 PRINT"4...":JOTA(CPY53):TAB(25):PRC13"/1":
650 PRINTY18:"YOU HAVE A $"IN
655 PRINTY18:"DO YOU WANT A BET ON THIS RACE."
658 INPUTY45
659 IFY45="N":THEND455
670 PRINTY18:"HIGH HORSE DO YOU WANT TO BET ON."
675 INPUTY45
676 IFY45=ORND(14):THEND455
677 PRINTY18:"HOW MUCH DO YOU WANT TO PUT ON IT."
680 INPUTY45
681 IFY45>50:THENDPRINTY45Y18: SETTING LIMIT IS 50000 "50000977
682 IF I=5:5:OR(Y45)PRINTY18:"NOT ENOUGH MONEY " (FOR I=1 TO 5:5:PRINT:
684 W4=ORND(1)*100+1):400
685 W4=400
686 DOUB12=500
687 PRINT"..... THE RACE IS ABOUT TO BEGIN"
688 W4=120000
610 PRINT"J"
620 FOR I=1 TO 5:
625 PRINT"....."
626 FOR I=1 TO 5:
627 PRINT"....."
628 W4="....."
631 PRINT"1234"
635 FOR I=1 TO 5:PRINTDTE4(I)*10:PRINT"1234"
638 NEXT I
639 PRINTY45:"OK"
640 POKEV45:1,50
645 POKE2842,13:POKE2843,13:POKE2844,13:POKE2845,13
646 POKEV45,50:POKEV45,50
645 POKEV444,4:POKEV445,5:POKEV441,15:POKEV446,30
646 IFH41>50:THEND444:1:50:50000
647 IFH42>50:THEND444:2:1:50:50000
648 IFH43>50:THEND444:3:1:50:50000
649 IFH45>50:THEND444:4:1:50:50000
650 POKEV44, H41):POKEV45,1:50
651 POKEV46, H42):POKEV47,1:50
652 POKEV48, H43):POKEV49,1:50
653 POKEV410, H44):POKEV411,1:50
655 LET HU41)=INT(ORND(1)*40/10)+1
656 LET HU42)=INT(ORND(1)*40/10)+1
657 LET HU43)=INT(ORND(1)*40/10)+1
658 LET HU45)=INT(ORND(1)*40/10)+1
659 FOR I=1 TO 5:

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0007 IFH=1 THEN PRINTER=1:GOTO=1
0008 NEXT I
0009 GOTO=8
0010 LET H=P1-H*P2+2
0011 P2=8
0012 GOTO=44
0013 IFH=4 THEN GOTO=10
0014 PRINT "*****THE WINNER IS "PRINTER" AT "P1/P2"/P"
0015 FOR I=1 TO 1000: NEXT I: GOTO=44
0016 PRINT "*****THE WINNER IS "PRINTER" AT "P1/P2"/P"
0017 PRINT "CONGRATULATE!!!"
0018 IFH=NOT PRINTER THEN YOU HAVE WON 2"PR2" ON YOUR BET."PR-H*H
0019 IF P1=1 THEN H=1:GOTO=10
0020 IF P1=2 THEN H=4:GOTO=10
0021 IF P1=3 THEN H=16:GOTO=10
0022 IF P1=4 THEN H=64:GOTO=10
0023 IF P1=5 THEN H=256:GOTO=10
0024 IF P1=6 THEN H=1024:GOTO=10
0025 IF P1=7 THEN H=4096:GOTO=10
0026 IF P1=8 THEN H=16384:GOTO=10
0027 IF P1=9 THEN H=65536:GOTO=10
0028 IF P1=10 THEN H=262144:GOTO=10
0029 IF P1=11 THEN H=1048576:GOTO=10
0030 IF P1=12 THEN H=4194304:GOTO=10
0031 IF P1=13 THEN H=16777216:GOTO=10
0032 IF P1=14 THEN H=67108864:GOTO=10
0033 IF P1=15 THEN H=268435904:GOTO=10
0034 IF P1=16 THEN H=1073743744:GOTO=10
0035 IF P1=17 THEN H=4294975008:GOTO=10
0036 IF P1=18 THEN H=17179900032:GOTO=10
0037 IF P1=19 THEN H=68719600128:GOTO=10
0038 IF P1=20 THEN H=274878400512:GOTO=10
0039 IF P1=21 THEN H=1099513602048:GOTO=10
0040 IF P1=22 THEN H=4398054408192:GOTO=10
0041 IF P1=23 THEN H=17592217632768:GOTO=10
0042 IF P1=24 THEN H=70368870531200:GOTO=10
0043 IF P1=25 THEN H=281475482124800:GOTO=10
0044 IF P1=26 THEN H=1125801928500736:GOTO=10
0045 IF P1=27 THEN H=4503207714002944:GOTO=10
0046 IF P1=28 THEN H=18012830856011776:GOTO=10
0047 IF P1=29 THEN H=72051323424047104:GOTO=10
0048 IF P1=30 THEN H=288205293696188416:GOTO=10
0049 IF P1=31 THEN H=1152821174784753664:GOTO=10
0050 IF P1=32 THEN H=4611284719139014656:GOTO=10
0051 IF P1=33 THEN H=18445138876556058624:GOTO=10
0052 IF P1=34 THEN H=73780555506224234500:GOTO=10
0053 IF P1=35 THEN H=295122222024896942016:GOTO=10
0054 IF P1=36 THEN H=1180488888099587768064:GOTO=10
0055 IF P1=37 THEN H=4721955552398351072256:GOTO=10
0056 IF P1=38 THEN H=18887822209593404289024:GOTO=10
0057 IF P1=39 THEN H=75551288838373617156096:GOTO=10
0058 IF P1=40 THEN H=302205155353494468624384:GOTO=10
0059 IF P1=41 THEN H=1208820621413977874497536:GOTO=10
0060 IF P1=42 THEN H=4835282485655911497990144:GOTO=10
0061 IF P1=43 THEN H=19341130342623645991960704:GOTO=10
0062 IF P1=44 THEN H=77364521370494583967842816:GOTO=10
0063 IF P1=45 THEN H=309458085481978335871371200:GOTO=10
0064 IF P1=46 THEN H=1237832341927913343485486016:GOTO=10
0065 IF P1=47 THEN H=4951329367711653373941944064:GOTO=10
0066 IF P1=48 THEN H=19805317470846613495767776256:GOTO=10
0067 IF P1=49 THEN H=79221269883386453983071105024:GOTO=10
0068 IF P1=50 THEN H=316885079533545815932284420096:GOTO=10
0069 IF P1=51 THEN H=1267540318134183263729137680384:GOTO=10
0070 IF P1=52 THEN H=5070161272536733054916510721536:GOTO=10
0071 IF P1=53 THEN H=2028064509014692221966604286720:GOTO=10
0072 IF P1=54 THEN H=8112258036058768887866417146880:GOTO=10
0073 IF P1=55 THEN H=32449032144235075551465668587520:GOTO=10
0074 IF P1=56 THEN H=129796128576940302205862674350080:GOTO=10
0075 IF P1=57 THEN H=519184514307761208823450697400384:GOTO=10
0076 IF P1=58 THEN H=2076738057231044835293802789601536:GOTO=10
0077 IF P1=59 THEN H=8306952228924179341175211158406144:GOTO=10
0078 IF P1=60 THEN H=33227808915696717364700844732824704:GOTO=10
0079 IF P1=61 THEN H=132911235662786873458803378931298816:GOTO=10
0080 IF P1=62 THEN H=531644942651147493835213515725195392:GOTO=10
0081 IF P1=63 THEN H=21265797706045899753408540629007808:GOTO=10
0082 IF P1=64 THEN H=85063190824183599013634162516031232:GOTO=10
0083 IF P1=65 THEN H=340252763305534396054536650064124928:GOTO=10
0084 IF P1=66 THEN H=1361011053222137584218146640256500096:GOTO=10
0085 IF P1=67 THEN H=5444044212888550336872586561026000384:GOTO=10
0086 IF P1=68 THEN H=21776176851554201347491546244104001536:GOTO=10
0087 IF P1=69 THEN H=87104707406216805389966184976416006144:GOTO=10
0088 IF P1=70 THEN H=348418829624867221559864739905664024704:GOTO=10
0089 IF P1=71 THEN H=1393675318509468886239458959622656098816:GOTO=10
0090 IF P1=72 THEN H=5574701274037875544957835838490624395392:GOTO=10
0091 IF P1=73 THEN H=22298805096151502179831343353962501581504:GOTO=10
0092 IF P1=74 THEN H=8919522038460600871932537337585000632608:GOTO=10
0093 IF P1=75 THEN H=35678088153842403487730149350340002530304:GOTO=10
0094 IF P1=76 THEN H=142712352615369613950920597401360010121216:GOTO=10
0095 IF P1=77 THEN H=570850410461478455803682389605440040484928:GOTO=10
0096 IF P1=78 THEN H=2283401641845913823214729558421760161939776:GOTO=10
0097 IF P1=79 THEN H=913360656738365529285891823368704064775904:GOTO=10
0098 IF P1=80 THEN H=3653442626953462117143567293474816259103616:GOTO=10
0099 IF P1=81 THEN H=14613770507813848468574269173899265156544512:GOTO=10
0100 IF P1=82 THEN H=58455082031255393874297076695597060626178304:GOTO=10
0101 IF P1=83 THEN H=2338203281250215754971883067823882425047136:GOTO=10
0102 IF P1=84 THEN H=9352813125000863019887532271295529700188544:GOTO=10
0103 IF P1=85 THEN H=3741125250000345207955012908518211880755200:GOTO=10
0104 IF P1=86 THEN H=1496450100001380083182005163527284752302144:GOTO=10
0105 IF P1=87 THEN H=59858004000055203327280205341091389692
```

**IF YOU USE YOUR COMPUTER TO
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AFFORD TO MISS.**

Computer GAMER

This fantastic new magazine appears on the fourth Friday of every month price of 98p.

Each issue will be produced in cooperation with Escann our Interplanetary Adviser who on his home planet, Aargon, is a member of the Association of Supreme Players. He will be monitoring developments in the games industry and advising Computer Gamer readers with all their gaming problems. Included in each issue will be pages of review of the latest games releases, special Adventure features and a help-line, invaluable articles on how to 'crack' specific games a high-scores page, exciting programs to type in for most of the popular home computers, news, competitions, reviews of peripherals and computers themselves if relevant to the games field and LOTS more.



Also, all readers of Computer Gamer will have the opportunity to join our tremendous Reader's Club — each member will receive a membership card and a regular newsletter which will contain up-to-the-minute news and all sorts of offers on a variety of products.

So all-in-all there's no way you can afford to be left out of the great new revolution in games computing — rush out and buy your copy NOW!

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JULY						
SUN	MON	TUES	WED	THUR	FRI	SAT
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

AUGUST						
SUN	MON	TUES	WED	THUR	FRI	SAT
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

SEPTEMBER						
SUN	MON	TUES	WED	THUR	FRI	SAT
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

OCTOBER						
SUN	MON	TUES	WED	THUR	FRI	SAT
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22	23	24	25	26	27	28
29	30	31				

NOVEMBER						
SUN	MON	TUES	WED	THUR	FRI	SAT
1	2	3	4	5	6	7
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15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

DECEMBER						
SUN	MON	TUES	WED	THUR	FRI	SAT
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Here are two programs to type in for VIC-20 owners:

Graphics Editor and Calendar, by W A Douglas

Here are two useful programs for your VIC-20. One of them is a graphics editor, while the other is a calendar.

Graphics editor is in two parts. The first section shows the characters and loads and runs the second part, which displays two 8 x 8 graphics on which two graphics can be drawn, using the diskboard keyboard graphic.

If the unnecessary space are deleted, the two lines can be entered into the program. The cursor is then placed on the "H" and "RETURN" pressed twice and it is then ready to accept the two graphics.

When finished the original program can be erased and your own program can be entered using the graphics.

Calendar displays the calendar for a month, selected by entering the year and the number of the month. It allows for leap years, every four years up to 1992, when the English calendar was adopted by being 11 days in September of that year. The program displays the month from past 100 years.

Even then on the program allows for leap years every four years except when the new century isn't divisible by 400, e.g. the year 2000 is a leap year, but the year 1900 isn't.

L. the author, have decided the history of the program with the Royal Historical Society Headquarters of Great for Students of English History by C R Chazy, and have been unable to find a

JUNE						
SUN	MON	TUES	WED	THUR	FRI	SAT
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Calendar

```

10 PRINT"UP YOURSSETS .00
11 PRINT"*****
12 PRINT" CALENDAR FOR MONTH "
13 PRINT" MONTH IN ANY YEAR"
14 PRINT" THE OLD CALENDAR "
15 PRINT"FROM ADJ TOWARD SEPT"
16 PRINT" 1720 AND THE NEW "
17 PRINT" CALENDAR FROM THEN "
18 PRINT" NEW TO INFINITY "
19 PRINT" BY W.A.DAUGLAS "
20 PRINT"*****
21 INPUT YEAR"YEA
22 INPUT
23 INPUT
24 INPUT NO.OF MONTH"
25 INPUT
26 IFN=1720 THENN="OLD CALENDAR"
27 IFN=1720 AND N=1 THENN="OLD CALENDAR"
28 IFN=1720 AND N=2 THENN="NEW CALENDAR"
29 IFN=1720 THENN="NEW CALENDAR"
30 PRINT"*****"
31 PRINT"*****"
32 PRINT"*****"
33 IFN=1720 AND N=1 THENN="JANUARY"
34 IFN=1720 AND N=2 THENN="FEBRUARY"
35 IFN=1720 AND N=3 THENN="MARCH"
36 IFN=1720 AND N=4 THENN="APRIL"
37 IFN=1720 AND N=5 THENN="MAY"
38 IFN=1720 AND N=6 THENN="JUNE"
39 IFN=1720 AND N=7 THENN="JULY"
40 IFN=1720 AND N=8 THENN="AUGUST"

```

```

145 IFN=1 THENM=8 THENPRINT"*****10 DAYS LEFT TO ADJUST TO GREGORIAN CALENDAR*"
150 IFN=8 THENM=4 PRNTHDATE="SEPTEMBER"
160 IFN=11 THENM=11 PRNTHDATE="NOVEMBER"
170 IFN=12 THENM=1 PRNTHDATE="DECEMBER"
180 PRINT
190 Z=N-1000:INT C\4:1000
200 M=N-8888:INT C\4:888
210 B=INT(N-1.5/100)
220 Y=INT C\1000
230 V=INT(N-1.5/400)
240 P=INT(1.3-1.5/400)
250 D2=-8 THENP=-1
260 J=2-4*(INT(2/4))
270 IFJ=0 ANDN<17558400 THENM=0+1
280 IFN<17558400-88882<10000 THENM=0+1
290 IFN<17558400-88888 THENM=0+1
300 IFN<17558400-17558400-18 THENL=Y*100+P+M+0
310 IFN<17558400-17558400-18 THENL=Y*100+P+M+0
320 C=L-7*INT(L/7)+12+C*888888/9
330 IFM=1000+8000+8000+7000+8000+10000+80 THENM=0+1
340 IFM=8000+8000+8000+11 THENM=00
350 IFM=8 THENM=00
360 IFN=17558400+8 THENM=00
370 IFN<17558400-88888 THENM=00
380 IFN<17558400-88882<10000 THENM=00
390 IFN<17558400-88888 THENM=00
400 PRINT"*** WED TO ME TH FR SAT*"
410 PRINT
420 PRNTHDATE
430 FORN=0+1 TOASTEP1
440 SPN=0-K000-15-K000+22-K000+40-K000+20-K THENPRINT" "
450 SPN=18 THENMFR
460 PRINT"SP18"
470 GOTO480
480 PRINT100
490 MENTR
500 PRINT
510 C=0+1
520 FORN=3057570500400 TEF221 FORN=30577050041 STEPF8
530 FORN=1.51 FORN=1.5
540 NEXTN NEXTM
550 GOTO480
560 PRINT"*** WED TO ME TH FR SAT*"
570 PRINT
580 PRINT"      1  2 14 15 16"
590 PRINT
600 PRINT"21  22 23 24 25 26 27"
610 PRINT
620 PRINT"28  29 30 31 32 33 34"
630 PRINT"35  36 37 38 39 40 41"
640 GOTO480

```



Graphics editor — Using 1

```

5 PRINT"*****"
10 PRINT"GRAPHIC DATA EDITOR"
15 PRINT"*****"
20 PRINT"  DESIGN YOUR OWN  GRAPHICS AND GET THEM"
25 PRINT"  LINES OF DECIMAL DATA  READY FOR PROGRAMMING"
27 PRINT"  GRAPHIC EDITOR"
29 PRINT"  PROGRAMS LOADED  AFTER THESE  INSTRUCTIONS"
30 PRINT"  PRESS ANY KEY"

```


TOP 20

Compiled by
Gallup



SOFTWARE

Fortnight Ending May 28, 1985

Up and coming

Soft Aid is continuing to keep a firm hold on the number 1 position in the chart this week but elsewhere there has been a lot of moving around.

There are 13 climbers in this week's chart and only six games on the way down. US Gold seems to be a very popular software house with three games in the chart and one of them is this week's only new entry, *Dungeons*.

Building under the top 20 this week is *Crashburn* from Palace Software which is at number 13 and CRL's *Rocky Horror Show* stands a very good chance of being in our chart next as it is currently at number 30.

One stark point of interest is that Deloy Thompson's *Demolition* and *Football Manager* have both climbed up an amazing 12 weeks in the charts.

		TITLE	PUBLISHER	LAST WEEK	WEEKS IN CHART	WEEKS IN CHART	WEEKS IN CHART	WEEKS IN CHART	WEEKS IN CHART
1	▲	Soft Aid	Nature	1	1				
2	▲	World Series Baseball	Imagica	2	2				
3	▲	Knightmare	Monaco	3	3				
4	▼	Ray Hunter	US Gold	4	4				
5	▲	Exolon	Melbourne House	5	5				
12	▲	International Baseball	Comstar	12	12				
14	□	Dungeons	US Gold	14	14	1	1	1	1
4	▼	Crashburn	Palace	4	4	1	1	1	1
7	▼	Bravo (arc)	US Gold	7	7	1	1	1	1
11	▲	Phantom II	GMS	11	11				
20	▲	Death Star Interrupter	System 3	20	20			1	1
21	▲	Doyle's a Wally	Offen	21	21				
14	▲	Deloy Thompson's Demolition	Quinn	14	14			1	1
19	▼	Football Manager	Addictive Games	19	19	1	1	1	1
22	▲	BRX Masters	Melbourne	22	22				1
12	▼	Shadowfax	Beyond	12	12				
6	▼	Crashburn	Addictive Inc	6	6	1	1	1	1
34	▲	Rocky Horror	Seamus	34	34				
26	▲	Exolon II	Lead II	26	26			1	1
28	▲	Finbar Rogers	Melbourne	28	28				

SPECTRUM

BBC

COMMODORE



Top Ten

1. Soft Aid
2. World Series Baseball
3. Knightmare
4. Ray Hunter
5. Exolon
6. International Baseball
7. Death Star Interrupter
8. Phantom II
9. Doyle's a Wally
10. Deloy Thompson's Demolition

Top Ten

1. Knightmare
2. Death Star Interrupter
3. Exolon
4. Ray Hunter
5. Doyle's a Wally
6. Deloy Thompson's Demolition
7. Phantom II
8. Death Star Interrupter
9. Doyle's a Wally
10. Deloy Thompson's Demolition

Top Ten

1. Soft Aid
2. International Baseball
3. Death Star Interrupter
4. Phantom II
5. Doyle's a Wally
6. Deloy Thompson's Demolition
7. Phantom II
8. Death Star Interrupter
9. Doyle's a Wally
10. Deloy Thompson's Demolition

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Atsuhiko and Tetsuo Matsuda. *Transcending Boundaries: The Japanese in the West*. Tokyo: Kodansha, 1997.



Susan Doberty — egg, reader

Helpline

Susan Doberty, of 6 Newton St. Concord, N. H., writes: "After buying Cante of Terror for the C64 I have not yet found the pin to put in the place wheel. I have had this damn for five months and I can only find the long cross, none help from old men, boys, girls, friends — but I just can't find the pin. Please, please help or I am going to lose all of my hair by scratching my head."

J. Stanley of 30, Lanes St. New Hampshire, typed and wrote DMA 284, has written to me about Football Manager. I think it's a very good game. I have used very hard but never managed to get one of the fourth round or past the fourth round of the FA cup. Is it possible?

Solution to last week's puzzle



Blankety-Blank

Just as in the famous Head To Head, you are asked to supply one word which goes with the clue.

For instance, blood, might be blood red, blood bank, blood feud, blood bath and so on.

To help you find the right word from several which may fit, the number tells you how long the word is.

Also, if you find the correct word each time, the first letters will form a word reading downwards, as will the last letters.

All four words are connected to make a short phrase. Can you find it?

Readers' hi-score table			
Name	Game	Machine	Score
Phil Brasted	Manch Mtn	Ti-80/144	120,170
Sophia Cross	Craxapax	C64	14,800
	Harbour Attack	C64	9,704
	Seller Wien	C64	4,200
Richard Davies	Band in Time	Amstrad	47 crystals
	Football Manager	Amstrad	17.5, eggs
Dora Minnie	Public Pleasants	Ti80/144	342,030
	Car Wars	Ti80/144	64,720
Lee Collier	Craxapax	Acari	135,750
	Deadly King	Acari	230,000
Bernard Peasey	Blow'n'Back Revenge	Amstrad	complaint in 67 days
Sophia Doberty	Chuckle Egg	BBC	20 scores, 14,000

Chuckle Egg reader

Since reading the answer to the Chuckle Egg in BBCW, I have tried desperately hard to find it. I got very close in one stage but I got killed. After a while I got done and made up a good answer. I submitted the game and got 11,000. While I was submitting, the my friends were checking my old scores, that they would have 30 points to my one and I would ask to be no longer than this.

One night at about 10pm, I loaded and started the game and said I would not stop till I had beaten it and was still going strong.

I got a big surprise on the 29th score because I kept on getting 1000. I eventually made it just that last was 14,000 on the 20th score. I ended up with a score of 14,000.

I kept wanting to write to BBCW to tell you about this but I forgot until I finally wrote this letter.

I don't want all Chuckle Egg 2 scores put on the BBC. When it does, I'm going to buy a straight away. On Chuckle Egg 1, I got very hard when you were being chased by a big yellow car the last time was.

Susan Doberty, Peterborough

	1st letter	Middle letters	Last letter
Bacon			
..... Ran (4)			
Keep			
..... Measure (6)			
..... Steve (5)			
..... Bean (4)			
..... Cord (3)			
Desert			



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